

REMARKS

The above-noted amendments to the claims, as well as the addition of new claims 56-59, are respectfully submitted in response to the official action dated December 23, 2008. Apart from the amendments which are obviously made solely for purposes of clarification, such as defining various sides of the doctor blades and elongated slits of the present invention, the limitations requiring that the second side of the elongated slit present a substantially planar surface for the second side of the doctor blade, whereby the doctor blade can be held along the substantially planar surface with a substantially even clamping force is specifically disclosed in ¶ [0035] of the specification, as well as in the drawings.

With respect to the requirement that the method of claim 55 include a second slit for the end of the support which includes a substantially planar surface for the purposes described therein, this is specifically disclosed in Fig. 5 and in ¶¶ [0067] and [0068] of the specification.

With respect to the requirement that the invention include a second elastomeric material disposed on the second side of the doctor blade thereby providing the substantially planar surface of the second side of the slit (as in dependent claim 57), this is specifically disclosed in Figs. 1A-1C, and in ¶ [0054] as well as at other places throughout the specification.

With respect to the requirement that the doctor blade have a thickness of about 0.6 and 0.22 mm, and that the elastomeric material be softer than the doctor blade, these limitations are specifically disclosed in ¶¶ [0063] and [0066] of the specification, as well as at other locations therein.

With respect to the limitation requiring only up to about 30% of the entire length of the doctor blade being disposed within the elongated slit, this is specifically

disclosed at ¶ [0063] of the specification, as well as in the drawings thereof. It is therefore clear that no new matter is included in these amendments, and their entry is therefore respectfully solicited.

It is further noted, in light of the amendments and remarks submitted previously submitted by applicants, that the Examiner has now withdrawn the prior rejections in this lengthy prosecution, and new grounds of rejection have now been made herein. It is applicants' contention that, in view of the above-noted amendments to the claims, the addition of new claims, and the following discussion, it is clear that all of these new grounds have been overcome, and reconsideration and allowance of all of these claims is therefore respectfully solicited.

Claim 55 has been rejected as being anticipated by Holdregger *et al.* under 35 U.S.C. § 102(b). The Examiner contends that Holdregger *et al.* teaches a method for removably attaching a doctor blade clamping portion to a support. The clamping portion 1 in Fig. 4 is said to include a first slit with a first opening 2 and a second slit including a second opening which is said to be referred to by the unlabeled slit opening one leg of support 18 in Fig. 4. The first slit is said to be intended to accommodate the doctor blade 27, and the method is said to comprise introducing the end portion of the support into the second opening of the second slit, and inserting resilient clamping means 3 into the second opening of the second slit for resiliently supporting at least one end portion of the support within the clamping portion. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

The subject matter of claim 55 is particularly directed to an embodiment of the present invention as shown in

Fig. 5 hereof. Thus, in Fig. 5 the doctor blade clamping portion 2 includes two slits, one for the doctor blade 5 and the other for the end 10' of the support 10. Furthermore, focusing only on the slits themselves, the first slit for accommodating the doctor blade itself relates to a slit which is now required to include one substantially planar side for support of the doctor blade, and another side for accommodating the wedge strip/elastomeric member 3. In this manner, a flat support plane is provided for the doctor blade so that it can be retained along the planar surface and at the same time the clamping means can urge the thin doctor blade towards that flat surface to provide a substantially even clamping force for the blade itself. The second slit relates to the accommodation of the end of the support itself, again with a wedge strip/elastomeric member therein in order to provide the powerful clamping action necessary for such purposes.

Holdregger *et al.*, on the other hand, does not include two slits, one for a doctor blade and the other for a support, and certainly not in the manner required by amended claim 55 in which the first slit includes one substantially planar side and a resilient clamping means for resiliently supporting the end of the doctor blade and a second slit for mounting of the end of the support itself.

Indeed, the Examiner's reference to Holdregger *et al.* is inconsistent. The Examiner first contends that Holdregger *et al.* includes a second slit including a second opening, and then refers to the unlabeled slit holding one leg of support 18 in Fig. 4. However, subsequently, when referring to the portion of claim 55 requiring insertion of resilient clamping means into the second opening for resiliently supporting the end of the support, the Examiner now refers to resilient clamping means 3, which may be said to support the doctor blade, but certainly does not support the support referred to by the Examiner. The

fact of the matter is that Holdregger *et al.* does not disclose a method for attaching a doctor blade clamping portion to a support which includes either a first slit of the nature required by claim 55 for support of a doctor blade, nor a second slit including resilient clamping means for resilient support of the end of a support. It is therefore believed that Holdregger *et al.* clearly does not teach, nor even suggest, the subject matter of claim 55, and withdrawal of this rejection is therefore respectfully solicited.

Claims 29-33, 35-39, and 50 has been rejected as being unpatentable over Bööse *et al.* '673 in view of Davis and Knop under 35 U.S.C. § 103(a). The Examiner contends that Bööse *et al.* teaches a doctor blade mounting system for applying liquids to a rotatable cylinder including an elongated frame 13 mounted adjacent to a rotatable cylinder 2 in which the elongated frame includes a support and a clamping portion 19 with an elongated slit referring to blades 9 and 10 engaged in a "slit" in Fig. 1 thereof. A doctor blade is disposed within the slit parallel to the cylinder and clamping means for fixing the doctor blade within the elongated slit to provide a damping action for the doctor blade, the Examiner referring to blades 9 and 10 fixed in the slit which are said to appear to be mounted in such a way that their action is damped.

The Examiner then admits that Bööse *et al.* does not teach the slit including an opening and the clamping means comprising an elastomeric material disposed within the slit and accessible for removal from the opening with the doctor blade disposed within the slit whereby the elastomeric material is resiliently disposed with respect to the doctor blade to provide a damping action and is removable from the opening to assist in subsequent removal of the doctor blade therefrom.

The Examiner then relies upon Davis as teaching a doctor blade mounting system for applying liquid including an

elongated frame 10 including a support and clamping portion including an elongated slit 21 with an opening at one end, a doctor blade (squeegee 25 in Fig. 3) disposed within the slit for operative wiping engagement, and clamping means 27 for clamping the doctor blade within the slit and providing damping action for the doctor blade, referring to column 3, line 61 through column 4, line 4 thereof. The clamping means are said to comprise a flexible material disposed within the slit and accessible from the opening whereby the material is resiliently disposed and is accessible to assist in removing the doctor blade. Davis is said to be silent regarding the material of the rod 27 other than to say it is "flexible" at column 3, line 62. The Examiner concludes that it would be obvious to modify Bööse *et al.* where the clamping means is resiliently disposed with respect to the doctor blade as taught by Davis because such combination would predictably provide a mechanism holding a doctor blade, and further because Davis teaches that the arrangement simplifies assembly and removal of the doctor blade.

Knop is then relied upon as teaching a flexible elastomeric member 4 for holding a doctor blade 3 in a slit in a holder 13, and that the material creates a seal preventing liquid penetration into the slit, citing column 4, lines 7-8 thereof.

It is thus concluded that it would be obvious to modify Bööse *et al.* where the material of the doctor blade holding member was an elastomer because Knop teaches that this provides a seal preventing liquid from penetrating the doctor blade holding slot.

As for claim 30, the three cited references are said to teach that clamping means is tightly received within the slit, noting that the clamping means 27 in Davis appears to be tightly received in recess 22. This combination of references is also said to teach the clamping means fixing the doctor blade

by means of friction (claim 31 — Davis, col.4 11.1-4); the damping means supporting at least one side of the doctor blade within the slit (claim 32 — Davis, col.4 11.1-4); the clamping means resiliently disposed within the slit (claim 33 — Davis "flexible", col.3 1.32); the clamping means comprising at least one elastomeric member (claim 35 — Knop col.4 11.1-5); at least a portion of the clamping means in the shape of a wedge strip to fit and lock within the profile of the slit (claim 36 — Davis col.4 1.65 through col.5 1.6); a portion of the clamping means supporting an edge of the doctor blade within the slit (claim 37 — Davis edge of blade 25 in recess 22); the elastomeric member having a hardness of about 70 degrees Shore A (claim 38 — Knop col.4 11.105); support and clamping portion comprising separate parts (see Bööse et al. Fig. 1) and the support including at least one end portion (see Davis support 17 which has a "end" in which blade 25 is clamped) and the clamping means resiliently clamping the clamping portion to the end portion of the support (claim 39).

With respect to claim 50, Bööse et al. is said to teach a doctor blade mounting system with a pair of clamping portions and a pair of elongated doctor blades mounted thereon, each including the elongated slit as discussed above. The Examiner states that "resilient" means "characterized or marked by resilience: as capable of withstanding shock without permanent deformation or rupture" (Merriam-Webster online dictionary at m-w.com). It is concluded that the metallic clamping apparatus of Bööse et al. is capable of withstanding shock without permanent deformation or rupture since it is well known that metals can be bent without causing permanent deformation or rupture.

After then admitting the deficiencies of Bööse et al. as discussed above, the Examiner again relies on Davis and Knop in the manner discussed above. This rejection is respectfully

traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Bööse *et al.* not only represents the invention of one of the co-inventors of the present application, but is part of the admitted state of the art as specifically discussed beginning at ¶ [0008] of the present specification. Bööse *et al.* thus represents a chambered doctor blade device of interconnected metal sections forming a flexurally and torsionally rigid unit ensuring contact distance between the frame and the cylinder against which the blades are to be applied. As is discussed in the specification, this device has an internal chamber with clamping strips, strip blade holder or single doctor blades and channels, as well as external chambers. It thus has far too many parts, unnecessary inked surfaces and nooks with capillary slots which are difficult to access to achieve simple and efficient cleaning of the printing unit. Furthermore, the doctor blades in such prior art devices tend to wear out far too quickly, causing frequent changes in the blades to become necessary, and to substantially increase the expense associated therewith. For these reasons, applicants, including the co-inventor of Bööse *et al.*, have developed the present invention so that a doctor blade system of relatively low weight has been devised with sufficient flexural and torsional rigidity to ensure even covering of the cylinder with even doctor blade contact, which is relatively easy to clean and maintain, and in which stress of a doctor blade decreases. Furthermore, a system has now been provided in which simple, safe and rapid change of doctor blades and end seals can be facilitated within and outside the printing press, and simple and rapid ink changes are possible without having to remove the chamber from the printing press.

Essentially recognizing this, the Examiner primarily relies upon the secondary Davis and Knop references to overcome

the clear and patentable differences between Bööse et al. and the present claims.

Turning to Davis, it is first noted that the subject matter of this patent is a squeegee in the form of an elongated rubber blade or the like employed in screen printing apparatus. Thus, in the case of this type of apparatus, as opposed to the rotary printing units which are the subject of the present invention, a horizontal screen surface is employed, and a squeegee 25 is intended to sweep the horizontal screen surface at a prescribed angle of 50° to 70°, in general. Therefore, in this case, again as contrasted to the present invention, the relatively soft and flexible squeegee 25 (typically made from flexible urethane material (see col.3 l.48)) is held in place, in the case of Davis, by means of a material which is substantially harder than that of the squeegee material. This can once again be contrasted to the present invention, in which the opposite takes place in connection with the elastomeric materials provided in the elongated slot of the present claims and as is specifically referred to in new independent claim 57 herein. The Examiner has relied heavily upon the disclosure in Davis referring to the elongated rods 27 as being "flexible" as referring to the portion of the specification at column 3, lines 60-65 in which the squeegee 25 is removably secured in the holder 10 by two elongated flexible cylindrical locking rods 27 which are manually pressed or forced into one of the grooves or recesses 22 adjacent to the squeegee or blade 25. Such "flexibility" may well refer to the length of the rod and the ability to apply it along the length of the recess, but certainly could not conceivably refer to the soft elastomeric material required in the present invention, which would clearly not even serve the purposes of Davis if it were attempted to be used in that environment.

It is next noted that the type of holder used in Davis includes a slit 21 which is said to extend for a substantial distance downwardly into holder 10, and which along that entire distance represents a single slot or groove substantially the same size as the blade 25 itself. It is only at the upper end of the slot where grooves 22 appear for accommodating elongated rods 27 on either side thereof. Thus, in the first instance, the thin steel doctor blades of the present invention, generally having thicknesses of from about 0.1 to about 0.15 mm, could not possibly be held in a device such as that shown in Davis. The slit 21 would be so narrow along most of its length to essentially make preparation of the overall profile almost impossible, and in any event making it quite difficult to clean the slit should ink enter therein. Furthermore, external extraction forces would not lock the cylindrical rod 27 of Davis in place even if they were made of elastomeric material. On the other hand, the elastomeric material used in accordance with the present invention clearly locks the doctor blade in place for precisely the opposite reasons from those inherent in Davis.

The slits of the present invention, as shown in the drawings and as required by the present claims, are required to include one side which is substantially planar for support of the doctor blade and another side which accommodates the elastomeric material comprising clamping means. It is only in this manner, with the doctor blade disposed within the slit and one side of the slit providing a flat supporting plane for the blade so that it can be held extremely straight to function in a chambered doctor blade system, that the wedge-like strip or elastomeric member of the present invention can press the portion of the thin doctor blade in the slit toward this flat supporting surface and provide a substantially even clamping force for the blade itself. Thus, whether the flat support surface is a surface of the holder itself or an additional piece

of elastomeric material having such a flat surface which is maintained against the surface of the holder itself, in conjunction with the elastomeric material, these significant results can now be achieved. Thus, in accordance with the presently claimed invention, the elastomeric member preferably has a wedge shape such that it is thicker than the inlet of the slit itself, and in a preferred embodiment the narrower opening of the slit has a locking function vis-à-vis the elastomeric member.

It is next noted that in Davis the main portion of the blade or squeegee is introduced into the slit in the holder to the extent that even the claims in Davis include requirements for the extent of the blade projecting into the slot being substantially greater than the extent of the blade which projects beyond the holder. In the present case, however, the doctor blades of the present invention are only introduced a distance of up to about 30% of the entire blade so that the main portion of the blade protrudes out of the slot, as is now specifically required by claim 59 herein. Once again, this is not only a function of the different environments in which these devices are employed, but also the differences between the squeegee-type blade 25 employed in the screen printing processes of Davis, and the thin steel doctor blades used in the environment of the rotatable cylinder printing equipment of the present invention. The distinct differences between the present claims and the Davis and Bööse *et al.* disclosures, when viewed in light of the quite different environments of Davis and the present invention (as well as Bööse *et al.*) makes it clear that these amount to patentable differences, and the Examiner's consideration of same is respectfully requested.

Turning to Knop, the device in this patent also does not relate to a doctor blade of the type of the present invention. In this case, Knop requires a doctor blade 3 which

is cylindrical in shape. Most importantly, this doctor rod, which is used for scraping excess coating material against a running web, is made of elastic material, and preferably an elastomer such as polyurethane, so that it can lie in contact with the bed 4 which rotationally holds the doctor rod 3. The bed 4 thus has a slot for accommodating the doctor rod 3. The bed 4 is inserted into the slot 18 of support 6 as shown in Fig. 3 thereof, and the cross-sectional area of the slot 18 is adapted to the outer contour of the bed 4 to securely hold it in place.

All of this is quite distinct from the presently claimed structure. Nothing in Knop in any way discloses or suggests a doctor blade mounting system for the purposes of the present invention, in which a doctor blade is disposed within an elongated slit which has one side presenting a substantially planar surface so that the doctor blade can be held along that surface in order to produce a substantially even clamping force, and whose other surface is in contact with clamping means comprising an elastomeric material accessible for removal from the opening with the doctor blade still disposed therein and so as to provide a damping action for the doctor blade as well as being removable from the opening to assist in subsequent removal of the doctor blade therefrom. Nothing of this type is even suggested by Knop. Indeed, even in the environment of Knop, the entire bed mounting system 4 is removed from the holder along with the cylindrical doctor rod 3.

It is therefore respectfully submitted that all of these claims clearly and patentably distinguish over this three-way combination of references, and therefore reconsideration and allowance of these claims is therefore respectfully solicited.

Claims 40-49 and 51-53 have been rejected as being unpatentable over Davis in view of Knop under

35 U.S.C. § 103(a). The Examiner repeats the above-noted contentions with respect to Davis teaching a doctor blade mounting system with a mounting blade clamping portion 17 including a slit including an opening 22 for the doctor blade 25 and clamping means 27 therefore. After then admitting that Davis does not teach where the clamping means comprises an elastomeric material, Knop is again relied upon as above. The Examiner further contends that this combination of references teaches clamping means tightly received within the slit (claim 41 — Davis clamping means 27 tightly received in recess 22); the clamping means fixing the doctor blade by means of friction (claim 42 — Davis, col.4 ll.1-4); the clamping means supporting at least one side of the doctor blade within the slit (claim 43 — Davis, col.4 ll.1-4); the clamping means resiliently disposed within the slit (claim 44 — Davis "flexible," col.3 l.62); the clamping means removably disposed within the slit (claim 45 — Davis, col.4 ll.19-25); the clamping means comprising at least one elastomeric member (claim 46 — Knop, col.4 ll.1-5); at least a portion of the clamping means in the shape of a wedge strip comprising a shape intended to fit and lock within a cross-sectional profile of the slit (claim 47 — Davis, col.4 l.65-col.5 l.6); a portion of the clamping means supporting an edge of the doctor blade within the slit (claim 48 — Davis, edge of blade 25 in recess 22); the elastomeric member with a hardness of about 70 degrees Shore A (claim 49 — Knop, col.4 ll.1-5); the claimed method for inserting a portion of the doctor blade into the slit through an opening and insertion of resilient clamping means into the slit for resiliently supporting one side of the doctor blade therein (claim 51-clamping means 3 and 12 disposed to the slit 2 supporting blade 10 in Fig. 4); the clamping means generating friction against the doctor blade (claim 52 — Davis, col.4 ll.1-4); and manually inserting the clamping means into the slit

where the clamping means is an elastomeric member (claim 53 — Knop, col.4 ll.1-5 and Davis col.4 ll. 19-24). The Examiner further concludes that lubricating the clamping means prior to insertion would be obvious to one of ordinary skill in the art. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Applicants would initially reiterate each of their above-noted contentions with respect to the clear deficiencies of both Davis and Knop with respect to the claims, and in particular, reference is made to claims 40 and 51, each of which includes these previously discussed limitations with respect to the overall scope and nature of the present invention. The removal of Bööse et al. from this combination simply renders this rejection inferior to the previously discussed three-way rejection. This is clear simply on the basis that everything in Bööse et al. previously relied upon by the Examiner is now no longer included in the cited prior art. It is thus submitted that these arguments alone clearly obviate this rejection and reconsideration and allowance of these claims is also respectfully solicited.

Claim 54 has been rejected as being unpatentable over Davis in view of Knop, and further in view of Bööse et al. under 35 U.S.C. § 103(a). After admitting that Davis and Knop do not teach attaching the clamping means to the substantially U-shaped support, Bööse et al. is said to teach attaching doctor blades to the end of such a support for use in printing. The Examiner thus concludes that it would be obvious to modify Davis by attaching the clamping means to a substantially U-shaped support as taught by Bööse et al. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Applicants again reiterate all of their above-noted contentions, not only with respect to the clear deficiencies in both Davis and Knop, but in the combination of these references with Bööse et al. as discussed above. Indeed, there is simply no reason to combine these references in this manner, since the environment of both Davis and Knop simply do not suggest their use in connection with a U-shaped support such as that of Bööse et al. In any event, however, for all of the reasons set forth above, this claim is clearly patentable over this art. It is thus respectfully requested that the Examiner reconsider this rejection. Allowance of this claim is therefore also respectfully solicited.

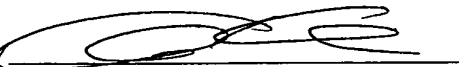
It is therefore respectfully submitted that all of the claims in this application now possess the requisite novelty, utility and unobviousness to warrant their immediate allowance, and such action is respectfully solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: March 23, 2009

Respectfully submitted,

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